METHOD AND APPARATUS FOR GENERATING PN SEQUENCES AT ARBITRARY PHASES

CROSS-REFERENCE TO RELATED APPLICATIONS

[1001] This application claims the benefit of United States Provisional Application Serial Number 60/236,774, filed September 28, 2000, the content of which is incorporated herein by reference in its entirety. 29

Field

[1002] The present invention relates to data communication, and more particularly to techniques for generating pseudo-random number (PN) sequences at various arbitrary phases using "masking" for coarse phase adjustment.

Background

[1003] Wireless communication systems are widely deployed to provide various types of communication such as voice, data, and so on, for a number of users. These systems may be based on code division multiple access (CDMA), time division multiple access (TDMA), frequency division multiple access (FDMA), or some other multiple access technique. CDMA systems may provide certain advantages over other types of system such as increased capacity. A CDMA system may be designed to implement IS-95, IS-856, cdma2000, W-CDMA, some other CDMA standard, or any combination thereof. These CDMA standards are well known in the art.

[1004] In a wireless communication system, a pilot is often transmitted from a transmission source (e.g., a base station) to a receiver device (e.g., a terminal) to assist the receiver device perform a number of functions. The pilot is typically generated based on a known data pattern (e.g., a sequence of all zeros) and using a known signal processing scheme (e.g., covered with a particular channelization code and spread with a known PN sequence). The pilot may be used at the receiver device for synchronization with the timing and frequency of the transmission source, estimation of the quality of the communication link, coherent demodulation of a data transmission, and possibly other functions such as determination of the specific transmission source